

REMARKS

Reconsideration of this application is respectfully requested. No claims have been amended. This application should be allowed because the pending rejections are unfounded and are based on a misapplication of the law of anticipation and obviousness.

The new dependent claims 24 to 27 are supported by the original application at page 10, line 11 to page 11, line 7. The new claims define a support consisting of alumina, sulfur and an inorganic fire resistant, such as alumina or titania. The support does not include ZrO_2 or TiO_2 , as does the support in Nakatsuji.

The rejection of claims 21 and 22 as being anticipated by Nakatsuji et al (EP 0 624 393 -- Nakatsuji) is traversed. There is no anticipation because invention as recited in these claims is not disclosed in Nakatsuji. Contrary to the rejection, Nakatsuji does not disclose the claimed catalyst having iridium, a rare-earth metal and sulfur.

Claims 21 and 23 define an exhaust-gas purifying process comprising (among other steps):

- preparing a catalyst comprising iridium, a rare-earth metal and **sulfur**, wherein the rare-earth metal is an oxide containing at least one element selected from a group consisting of cerium, lanthanum, yttrium, neodymium and praseodymium. Claim 21 (Emphasis Supplied)
- catalyst comprising iridium, a rare-earth metal and **sulfur**, wherein the rare-earth metal is a composite oxide containing at least one element selected from a group consisting of cerium, lanthanum, yttrium, neodymium and

praseodymium, and at least one element selected from a group consisting of manganese, iron, cobalt, nickel, copper and zinc. Claim 22 (Emphasis Supplied).

Nakatsuji does not disclose sulfur in a catalyst also having iridium and a rare-earth metal oxide. The one iridium containing catalyst disclosed in Nakatsuji is in example B-33. Example B-33 is a catalyst having cerium oxide and iridium on a support of "H-ZSM-5 powder" which is $\text{SiO}_2/\text{Al}_2\text{O}_3$. See Nakatsuji, example A7 at page 6 (which defines the H-ZSM-5 power). The B-33 catalyst does not have sulfur. There is no suggestion in Nakatsuji to include sulfur in a catalyst that also has iridium.

With respect to claim 22, Nakatsuji also does not disclose the B-33 catalyst having at least one element of the group "manganese, iron, cobalt, nickel, copper and zinc."

The general disclosure in Nakatsuji of catalysts formed using cerium oxides and Group VIII metals does not constitute an anticipating disclosure of the specific catalysts recited in claims 21 and 22. The claimed catalyst compound is not apparent from the generic chemical compounds disclosed in Nakatsuji. MPEP 2131.02 states as follows:

If one of ordinary skill in the art is able to "at once envisage" the specific compound within the generic chemical formula, the compound is anticipated. One of ordinary skill in the art must be able to draw the structural formula or write the name of each of the compounds included in the generic formula before any of the compounds can be "at once envisaged." One may look to the preferred embodiments to determine which compounds can be anticipated. In re Petering, 301 F.2d 676, 133 USPQ 275 (CCPA 1962).

The disclosure of $\text{TiO}_2/\text{SO}_4^{2-}$ and $\text{ZrO}_2/\text{SO}_4^{2-}$ in Nakatsuji is made in the context of many oxide carriers discussed therein. There is no teaching in Nakatsuji that sulfur is advantageous in the catalysts disclosed therein or that sulfur would be particularly useful in a catalyst that also included iridium. Further, the one iridium example (B-33) given in Nakatsuji uses a non-sulfur carrier. A skilled person would not have at once envisaged using a sulfur based carrier instead of H-25M-5 in the B-33 catalyst disclosed in Nakatsuji.

The rejection is premised on modifying Nakatsuji's B-33 catalyst to have sulfur rather than the H-ZSM-5 carrier that is disclosed. A proper anticipation rejection must be based on the actual disclosure in the prior art reference without modification. It is improper to modify a prior art disclosure to support an anticipation rejection.

The law of anticipation requires that the same invention, with all the limitations of the claims, existed in the prior art. See *Richardson v. Suzuki Motor Co.*, 868 F.2d 1226, 1236, 9 USPQ2d 1913, 1920-21 (Fed. Cir. 1989) ("anticipation" requires that the identical invention be described in a single prior art reference). **A prior art device can not be altered by the Board and then found to anticipate a different invention in whose image it was recreated.** (*In re Schreiber*, 44 USPQ2d 1429 (CA FC 1997)(Emphasis supplied)).

The anticipation rejection should be withdrawn because the Nakatsuji does not disclose the exact same catalyst as recited in claims 21 and 22.

The rejection of claims 18-23 as being obvious over Lauder (U.S. Patent No. 4,049,583) in view of Shigeru et al. (Japanese Patent Publication 7-80315 - Shigeru) is

traversed. Lauder and Shigeru do not disclose or suggest the claimed catalyst which includes sulfur.

Lauder discloses a catalyst that lacks sulfur. The catalyst disclosed by Lauder has an ABO_3 crystal structure, wherein the sites of Type A are occupied by cations of at least two different metals each occupying at least 1% of the Type A cation sites and having an ionic radius between 0.8 and 1.65 Å, and from about 1% up to about 20% of the sites of Type B are occupied by ions of platinum group metals. The remaining sites of Type B in the ABO_3 crystal structure are occupied by ions of non-platinum group metals having ionic radii between about 0.4 and 1.4 Å. There is no suggestion in Lauder to add sulfur to the catalyst.

Lauder teaches that the ABO_3 crystal structure is preferable to other metal oxide compounds. Lauder, col. 1, ln. 63 to col. 2, ln. 21. Lauder states that “[t]he compounds of this invention require the presence of platinum group metals” arranged in the Type B sites of the ABO_3 crystal structure. Lauder, col. 2, lns. 23-51. Lauder teaches away from catalysts not arranged in the ABO_3 crystal structure by stating that:

“relatively short-lived, apparently because of either the formation of relatively volatile oxides (osmium and ruthenium), because of changes in crystallite particle size or surface properties, or because of interaction with various components of exhaust gases in ways which reduce their catalytic activity (for instance by forming catalytically less active compounds or alloys and by forming volatile halide compounds); and are unsatisfactory in other ways.” [Lauder, col. 1, lns. 51-60].

Accordingly, Lauder teaches away from using a catalyst that does not have an ABO_3 crystal structure. *In re Gurley*, 31 U.S.P.Q.2d 1130 (Fed. Cir. 1994)(“ A reference may

be said to teach away when a person of ordinary skill, upon reading the reference, would be discouraged from following the path set out in the reference, or would be led in a direction divergent from the path that was taken by the applicant.”). A person of ordinary skill in the art would be lead away from catalysts that do not have an ABO_3 crystal structure, as does the claimed catalyst. Because Lauder teaches away from the claimed catalyst, it may not be properly applied to support an obviousness rejection.

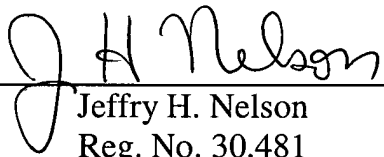
In contrast to Lauder, the catalyst recited by amended claims 18-23 does not have the special ABO_3 crystal structure. Sulfur is not a constituent of the ABO_3 crystal structure disclosed in Lauder. The catalysts disclosed in this application do not have the ABO_3 crystal structure. For example, the application discloses depositing iridium on a metallic sulfate carrier. It is believe that the ABO_3 crystal structure is not useful to form the claimed invention. Accordingly, the ABO_3 crystal structure disclose in Lauder would not be suitable to form the claimed catalysts.

Shigeru does not disclose a catalyst including a metallic sulfate having iridium deposited thereon. Shigeru does not teach adding sulfur to the ABO_3 structured catalyst disclosed in Lauder. There is no suggestion, teaching or motivation evident from the prior art to combine Lauder and Shigeru to create the claimed invention. Further, it is evident that when compositions are deposited on a catalyst the effects vary in accordance with the makeup of the compositions in unpredictable ways. In view of the uncertainties in this art, it would not have been obvious to a person of ordinary skill in the art to form the claim invention based on the teachings of Lauder and Shigeru.

The rejections for anticipation of obviousness should be withdrawn. If any small matter remains outstanding, the Examiner is requested to telephone applicants' attorney. Prompt reconsideration and allowance of this application is requested.

Respectfully submitted,

NIXON & VANDERHYE P.C.

By: 
Jeffrey H. Nelson
Reg. No. 30,481

JHN:glf
1100 North Glebe Road, 8th Floor
Arlington, VA 22201-4714
Telephone: (703) 816-4000
Facsimile: (703) 816-4100
